

Other alternative computer platforms can be used. The operating system can be, for example, but is not limited to, WINDOWS®, LINUX®, and VMS. Communications links can be wired or wireless, for example, using cellular communication systems, military communications systems, and satellite communications systems. Any data and results can be stored for future retrieval and processing, printed, displayed, transferred to another computer, and/or transferred elsewhere. In compliance with the statute, the present teachings have been described in language more or less specific as to structural and methodical features. It is to be understood, however, that the present teachings are not limited to the specific features shown.

[0398] Referring again to FIGS. 46A-46D, 55Q, and 56-61, methods 1500 (FIG. 46A), 1550 (FIG. 46B), 1580 (FIG. 46C), 1530 (FIG. 46D), 3160 (FIG. 55Q), 150 (FIG. 56), 250 (FIG. 57), 149 (FIG. 58) 249 (FIG. 59), 600 (FIG. 60), 620 (FIG. 61), can be, in whole or in part, implemented electronically. Signals representing actions taken by elements of systems that implement the methods of the present configuration, and other disclosed configurations can travel over at least one live communications network. Control and data information can be electronically executed and stored on at least one computer-readable medium. The system can be implemented to execute on at least one computer node in at least one live communications network enabled by such protocols as TCP/IP and PCAN, for example. Common forms of at least one computer-readable medium can include, for example, but not be limited to, a floppy disk, a flexible disk, a hard disk, magnetic tape, or any other magnetic medium, a compact disk read only memory or any other optical medium, punched cards, paper tape, or any other physical medium with patterns of holes, a random access memory, a programmable read only memory, and erasable programmable read only memory (EPROM), a Flash EPROM, or any other memory chip or cartridge, or any other medium from which a computer can read. Further, the at least one computer readable medium can contain graphs in any form including, but not limited to, Graphic Interchange Format (GIF), Joint Photographic Experts Group (JPEG), Portable Network Graphics (PNG), Scalable Vector Graphics (SVG), and Tagged Image File Format (TIFF).

[0399] The configurations shown in drawings are presented only to demonstrate certain examples of the present teachings. The drawings described are illustrative and are non-limiting. In the drawings, for illustrative purposes, the size of some of the elements may not be drawn to a particular scale. Elements shown within the drawings that have the same numbers may be identical elements or may be similar elements, depending on the context.

[0400] The terms “first”, “second”, “third” and the like, whether used in the description or in the claims, are provided for distinguishing elements. It is to be understood that the terms so used are interchangeable under appropriate circumstances (unless clearly disclosed otherwise) and that the configurations of the disclosure described herein are capable of operation in other sequences and/or arrangements than are described or illustrated herein.

[0401] While the present teachings have been described above in terms of specific examples, it is to be understood that the present teachings are not limited to the disclosed

examples. Many modifications and other examples are intended to be and are covered by this disclosure and the appended claims.

What is claimed is:

1. A method for engineering a transplantable tissue from a donor tissue comprising:
 - accessing a recipe including recipe steps;
 - receiving GUI input from a graphical user interface (GUI); and
 - accessing, by a controller, the recipe steps, the GUI input, and at least one default value;
 - forming, by the controller, at least one controller command based on arbitrating the at least one default value, the recipe steps, and the GUI input;
 - executing, by the controller, the at least one controller command to engineer the transplantable tissue including the donor tissue.
2. The method as in claim 1 further comprising:
 - updating, by the controller, the GUI based at least on a status of the transplantable tissue; and
 - updating, by the controller, the recipe based at least on the status.
3. The method as in claim 1 comprising:
 - configuring at least one valve in a fluid path according to the recipe;
 - continually adjusting the fluid path by manipulating the at least one valve based on the recipe;
 - pumping water through the continually-adjusted fluid path past at least one of the at least one valve to a mix cassette, an amount of the water being based on the recipe;
 - pumping at least one solution through the continually-adjusted fluid path past at least one of the at least one valve to the mix cassette, a solution amount of the at least one solution being based at least on the recipe;
 - mixing the water and the at least one solution in the mix cassette to form a medium, a mixing amount of the mixing being based at least on the recipe;
 - pumping the medium through the continually-adjusted fluid path to a reservoir based at least on the recipe;
 - pumping the medium through the continually-adjusted fluid path from the reservoir to a bioreactor based at least on the recipe, the medium becoming a used medium in the bioreactor; and
 - pumping the used medium through the continually-adjusted fluid path from the bioreactor to a drain based at least on the recipe.
4. The method as in claim 1 wherein the water comprises deionized water.
5. The method as in claim 1 further comprising:
 - filtering the water;
 - deaerating the water; and
 - if a water amount of the water exceeds a pre-selected threshold, storing at least part of the water.
6. The method as in claim 3 wherein the at least one solution comprises a concentrated form of the at least one solution.
7. The method as in claim 1 comprising:
 - covering at least one pumping chamber and at least one fluid valve of at least one cassette with a flexible sheet;
 - housing the donor tissue in a bioreactor, the bioreactor being in fluid communication with the at least one cassette;